

CLAIM AMENDMENTS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-8 (cancelled).

Claim 9 (currently amended). A process for the synthetic generation of methane from a feed gas mixture, the process comprising the steps of:

providing the feed gas mixture originating from a biomass ~~gassification~~ gasification process, the feed gas mixture including carbon monoxide, hydrogen, water vapor, C₂ components and aromatic hydrocarbons the aromatic hydrocarbons being in the range of ~~less than~~ 0.5 to 10 vol %, wherein said aromatic hydrocarbons are present in an amount of at least 0.4 g/Nm³, said feed gas further including benzene, naphthalene, toluene and C8 at a concentration of about 15 g/Nm³

bringing the feed gas mixture, without a pretreatment in an activated carbon filter, into contact with a fluidized bed catalyst having catalyst particles, having a catalytic active component including at least one of a metal, a metal compound or a mixture thereof under the conditions of:

- an elevated temperature in the range of 250 to 500°C;
- a feed gas pressure in the range of 0.8 to 70 bar;
- a gas hourly space velocity of 1000 to 50000 h⁻¹; and

a mole ratio of H_2/CO in the initial gas mixture in the range of 0.25 to 5 when the feed gas is brought into contact with the fluidized bed catalyst.

Claim 10 (previously presented). The process according to claim 9, wherein the catalytic active component is selected from the group consisting of at least one of nickel, or a nickel compound disposed on a ceramic carrier.

Claim 11 (previously presented). The process according to claim 10, wherein the catalytic active component is a mixture of nickel and nickel oxide.

Claim 12 (previously presented). The process according to claim 11, wherein the ceramic carrier is Al_2O_3 , TiO_2 , SiO_2 or Y_2O_3 or mixtures thereof.

Claim 13 (previously presented). The process according to claim 9, wherein the content of the catalytically active component is in the range of 20 to 80 weight %, as compared to the weight of the catalyst particles.

Claim 14 (previously presented). The process according to claim 13, wherein the content of the catalytically active component is in the range of 40 to 60 weight %, as compared to the weight of the catalyst particles.

Claim 15 (previously presented). The process according to claim 9, wherein the size of the catalyst particles is in the range of 10 to 1000 μm .

Claim 16 (previously presented). The process according to claim 15, wherein the size of the catalyst particles is in the range of 50 to 500 μm .

Claim 17 (previously presented). The process according to claim 9, wherein the gas hourly space velocity is in the range of 2000 to 10000 h^{-1} , the temperature is in the range of 340 to 400 $^{\circ}\text{C}$ and the gas pressure is in the range of 0.8 to 10 bar.

Claim 18 (previously presented). The process according to claim 9, wherein a mean residence time of the feed gas mixture in the fluidized bed catalyst is in the range of 0.1 to 5 sec.

Claim 19 (previously presented). The process according to claim 18, wherein a mean residence time of the feed gas mixture in the fluidized bed catalyst is in the range of 0.2 to 1 sec.

Claim 20 (previously presented). The process according to claim 9, wherein the content of H_2/CO in the feed gas mixture is in the range of 0.8 to 2.

Claim 21 (previously presented). The process according to claim 9, wherein the feed gas mixture further contains at least one of benzene, toluene or naphthalene in the range of less than 5 vol % based on the overall volume of the feed gas.

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Claim 22 (previously presented). The process according to claim 9, wherein the feed gas is in the range of 1 to 5 vol % based on the overall volume of the feed gas and the fluidized bed catalyst.

Claims 23-28 (cancelled).